Inspection Report For Well: UT20736 - 06600

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 9/24/2013

INSPECTOR(S): Lead: Roberts, Sarah — Date: ~~10~~ 12/10/2013

Others: Ajayi, Christopher — Time: 10:35 am / pm

OPERATOR (only if different): _____

REPRESENTATIVE(S): Chad Stevnson

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name:	Ute Tribal 16-01		
Well Type:	Enhanced Recovery (2R)		
Operating Status:	AC (ACTIVE) as of 12/30/2005		
Oil Field:	Antelope Creek (Duchesne)		
Location:	NWNE S16 T5S R3W		
Indian Country:	X, Uintah and Ouray		
Last Inspection:	8/28/2012	***Allowable Inj Pressure:***	1660 /
Last MIT:	Pass 12/29/2010	***Annulus Pressure From Last MIT:***	1100

BLACK = POSSIBLE VIOLATION GREY = DATA MISSING

INSPECTION TYPE: (Select One)

- ☐ Construction / Workover
- ☐ Plugging
- ☐ Post-Closure
- ☐ Response to Complaint
- ☒ Routine
- ☐ Witness MIT
- ☐ Other

OBSERVED VALUES:

Tubing Gauge:	☒ Yes / ☐ No	Pressure: U: 1572 / L: ____ psig	Gauge Range: Scada psig	Gauge Owner:	☐ EPA / ☒ Operator
Annulus Gauge:	☒ Yes / ☐ No	Pressure: 0 psig	Gauge Range: open annulus psig	Gauge Owner:	☒ EPA / ☐ Operator
Bradenhead Gauge:	☐ Yes / ☐ No	Pressure: ____ psig	Gauge Range: ____ psig	Gauge Owner:	☐ EPA / ☐ Operator
Pump Gauge:	☐ Yes / ☐ No	Pressure: ____ psig	Gauge Range: ____ psig	Gauge Owner:	☐ EPA / ☐ Operator

Operating Status: (Select One)

- ☒ Active
- ☐ Being Reworked
- ☐ Not Injecting
- ☐ Production
- ☐ Plugged and Abandoned
- ☐ Under Construction

See page 2 for photos, comments, and site conditions.

GREEN TAB 1

UZ Entered
Date 12/11/13
Initial AR

Inspection Report For Well: UT20736 - 06600 (PAGE 2)

PHOTOGRAPHS: ☐ Yes ☒ No List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s): _____ _____

☐ Data Entry ☐ Compliance Staff ☐ Hard Copy Filing

NOTICE OF INSPECTION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 12/16/13
Hour: 8:00a

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Firm Name: Petroglyph Operating, Inc.

Firm Address: Roosevelt, UT, Antelope Creek Oil Field

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Sarah Roberts
Inspector's Name & Title (Print)

Inspector's Signature

EPA R8 3560-1 (8-89)

Original - Regional Office Copy
Yellow Copy - Operator Copy

OMB No. 2040-0042 Approval Expires 11/30/2014

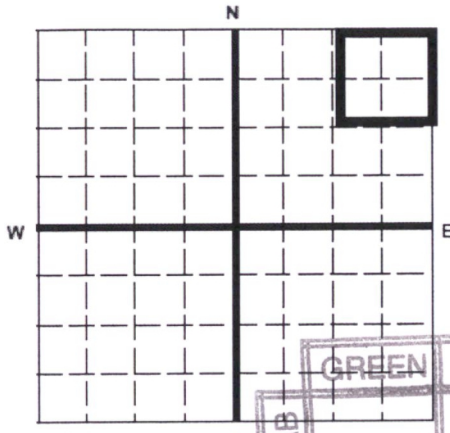
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-006600

Surface Location Description
___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 16 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 611 ft. frm (N/S) N Line of quarter section
and 907 ft. from (E/W) E Line of quarter section.

U2 Entered
Date 3/30/17
Initial JS

WELL ACTIVITY
- [ ] Brine Disposal
- [X] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [X] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 16-01

GREEN BLUE CBI TAB 2

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	16	1563	1597	1168		0	0
February	16	1578	1598	1026		0	0
March	16	1609	1617	1143		0	0
April	16	1618	1632	1102		0	0
May	16	1594	1597	970		0	0
June	16	1539	1606	799		0	0
July	16	1597	1608	1028		0	0
August	16	1566	1630	967		0	0
September	16	1584	1619	814		0	0
October	16	1595	1606	980		0	0
November	16	1585	1595	878		0	0
December	16	1618	1633	1210		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		03/21/2017

EPA Form 7520-11 (Rev. 12-11)

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 16-01 INJ, DUCHESNE**	Lab Tech:	**Michele Pike**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2017**		
Sample ID:	**WA-345359**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/25/2017
System Temperature 1 (°F):	300
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	130
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0040
pH:	8.40
Calculated TDS (mg/L):	9720.91
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	3242.45	Chloride (Cl):	4000.00
Potassium (K):	137.28	Sulfate (SO_4):	0.00
Magnesium (Mg):	14.60	Bicarbonate (HCO_3):	2196.00
Calcium (Ca):	35.74	Carbonate (CO_3):	
Strontium (Sr):	5.70	Hydroxide(HO):	
Barium (Ba):	21.57	Acetic Acid (CH_3COO)	
Iron (Fe):	16.85	Propionic Acid (C_2H_5COO)	
Zinc (Zn):	5.49	Butanoic Acid (C_3H_7COO)	
Lead (Pb):	5.79	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Ammonia NH_3:		Fluoride (F):	
Manganese (Mn):	0.25	Bromine (Br):	
Aluminum (Al):	1.26	Silica (SiO_2):	39.19
Lithium (Li):	2.95	Calcium Carbonate ($CaCO_3$):	
Boron (B):	6.45	Phosphates (PO_4):	23.82
Silicon (Si):	18.32	Oxygen (O_2):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	1.54	29.56	0.00	0.00	0.00	0.00	3.34	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
149.00	267.00	1.59	29.77	0.00	0.00	0.00	0.00	3.43	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168.00	483.00	1.66	30.03	0.00	0.00	0.00	0.00	3.52	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187.00	700.00	1.74	30.27	0.00	0.00	0.00	0.00	3.61	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206.00	917.00	1.83	30.48	0.00	0.00	0.00	0.00	3.69	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224.00	1133.00	1.93	30.66	0.00	0.00	0.00	0.00	3.77	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
243.00	1350.00	2.04	30.81	0.00	0.00	0.00	0.00	3.85	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
262.00	1567.00	2.15	30.93	0.00	0.00	0.00	0.00	3.92	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281.00	1783.00	2.26	31.02	0.00	0.00	0.00	0.00	3.98	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	2000.00	2.38	31.09	0.00	0.00	0.00	0.00	4.04	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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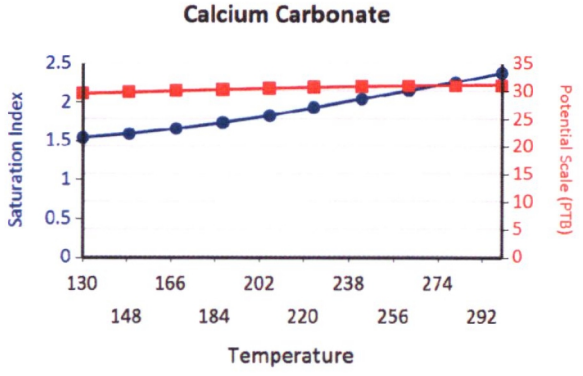
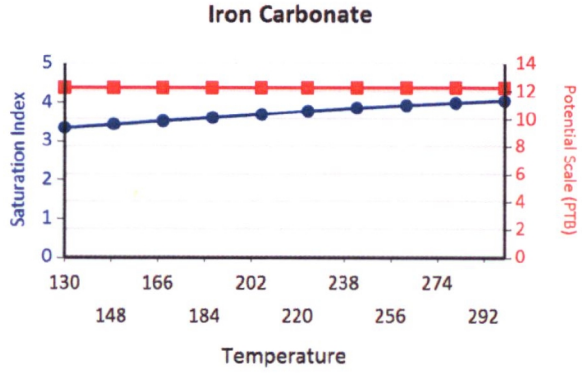
Water Analysis Report

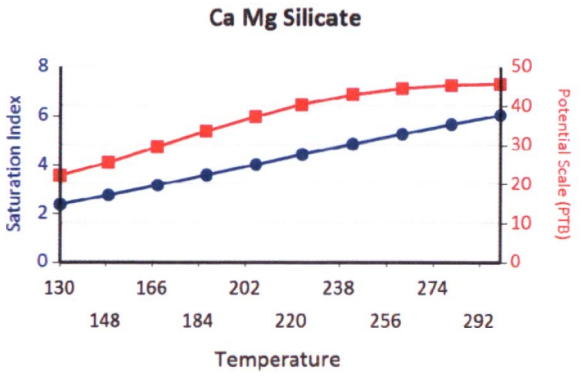
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45	3.68	0.00	0.00	4.00	23.14	2.36	22.18	12.22	13.10
149.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65	3.68	0.00	0.00	4.71	25.28	2.74	25.47	12.65	13.10
168.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	2.84	3.69	0.00	0.00	5.47	26.97	3.16	29.52	13.13	13.11
187.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	3.01	3.69	0.00	0.00	6.22	28.00	3.58	33.48	13.64	13.11
206.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	3.17	3.69	0.00	0.00	6.96	28.56	4.00	37.14	14.15	13.11
224.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	3.31	3.69	0.00	0.00	7.68	28.86	4.42	40.27	14.67	13.11
243.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	3.43	3.69	0.00	0.00	8.39	29.01	4.83	42.68	15.19	13.11
262.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	3.54	3.69	0.00	0.00	9.08	29.09	5.24	44.30	15.70	13.11
281.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	3.63	3.69	0.00	0.00	9.75	29.13	5.64	45.13	16.20	13.11
300.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	3.69	0.00	0.00	10.39	29.15	6.02	45.46	16.69	13.11

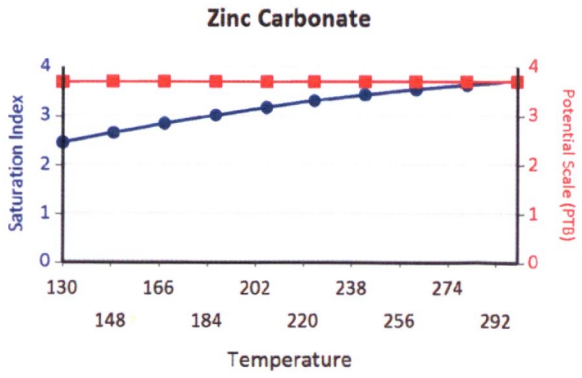
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate









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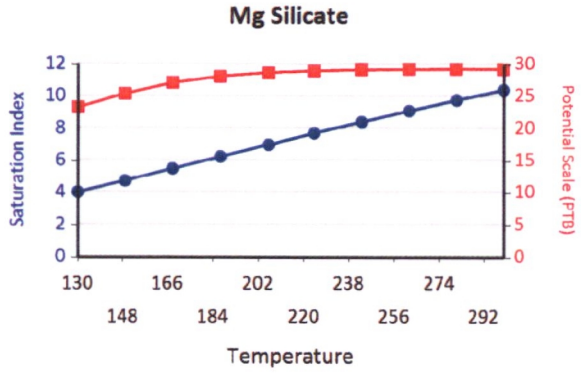
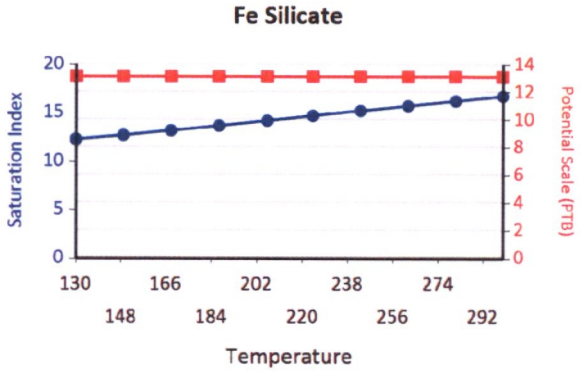
Water Analysis Report





OMB No. 2040-0042 Approval Expires 11/30/2014

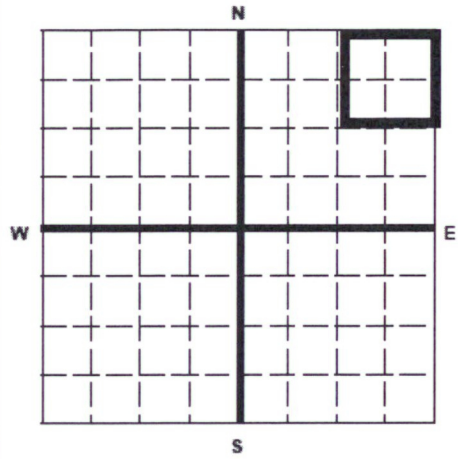
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-~~04434~~ 06600

Surface Location Description
___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 16 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 611 ft. frm (N/S) N Line of quarter section
and 907 ft. from (E/W) E Line of quarter section.

U2 Entered
Date 3/1/16
Initial SB

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 16-01

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	1502	1561	1032		0	0
February	15	1557	1574	1181		0	0
March	15	1600	1616	1468		0	0
April	15	1596	1624	1008		0	0
May	15	1611	1630	1081		0	0
June	15	1574	1617	963		0	0
July	15	1601	1607	1208		0	0
August	15	1578	1599	1023		0	0
September	15	1568	1599	827		0	0
October	15	1223	1610	814		0	0
November	15	1461	1605	1431		0	0
December	15	1586	1609	1166		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		02/08/2016

EPA Form 7520-11 (Rev. 12-11)

GREEN BLUE OBS TAB 2

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 16-01 INJ, DUCHESNE**	Lab Tech:	**Michele Pike**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2016**		
Sample ID:	**WA-327645**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/14/2016
System Temperature 1 (°F):	60
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	180
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0074
pH:	8.30
Calculated TDS (mg/L):	14630.75
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	mg/L	Anions	mg/L
Sodium (Na):	5163.60	Chloride (Cl):	6500.00
Potassium (K):	26.21	Sulfate (SO_4):	3.00
Magnesium (Mg):	9.05	Bicarbonate (HCO_3):	2806.00
Calcium (Ca):	27.69	Carbonate (CO_3):	
Strontium (Sr):	4.44	Acetic Acid (CH_3COO)	
Barium (Ba):	26.76	Propionic Acid (C_2H_5COO)	
Iron (Fe):	35.63	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	7.17	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.26	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.04	Silica (SiO_2):	20.90
Aluminum (Al):	0.05	Calcium Carbonate ($CaCO_3$):	
Lithium (Li):	1.75	Phosphates (PO_4):	6.15
Boron (B):	3.42	Oxygen (O_2):	
Silicon (Si):	9.77		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	1.59	23.37	0.00	0.00	0.00	0.00	3.93	25.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167.00	267.00	1.50	23.13	0.00	0.00	0.00	0.00	3.82	25.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	483.00	1.43	22.92	0.00	0.00	0.00	0.00	3.73	25.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	700.00	1.36	22.68	0.00	0.00	0.00	0.00	3.63	25.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127.00	917.00	1.30	22.42	0.03	0.17	0.00	0.00	3.54	25.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	1133.00	1.24	22.15	0.10	0.48	0.00	0.00	3.45	25.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1350.00	1.19	21.86	0.18	0.80	0.00	0.00	3.35	25.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	1567.00	1.14	21.57	0.28	1.11	0.00	0.00	3.26	25.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	1.10	21.28	0.39	1.42	0.00	0.00	3.17	25.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	1.06	20.99	0.52	1.70	0.00	0.00	3.07	25.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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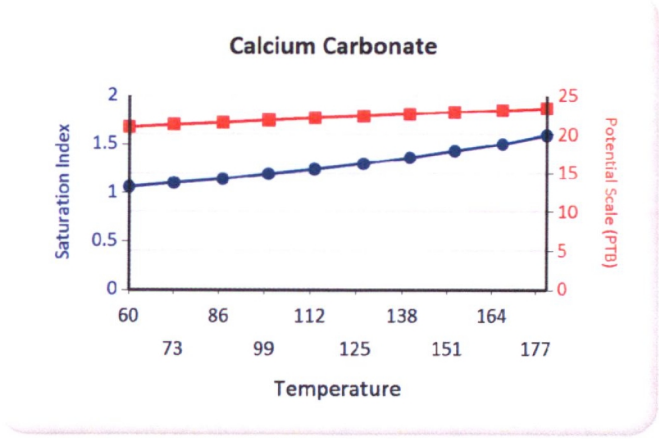
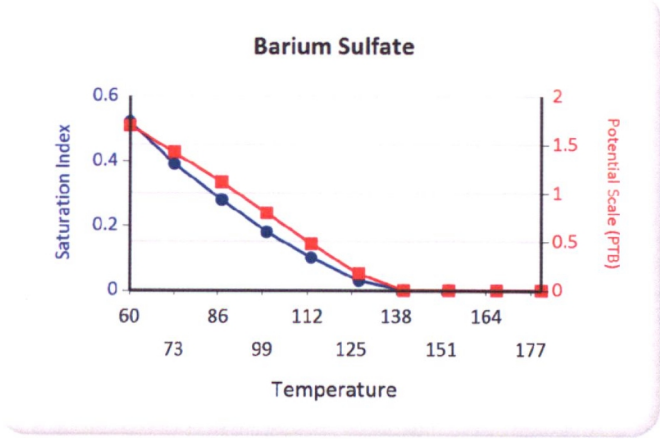
Water Analysis Report

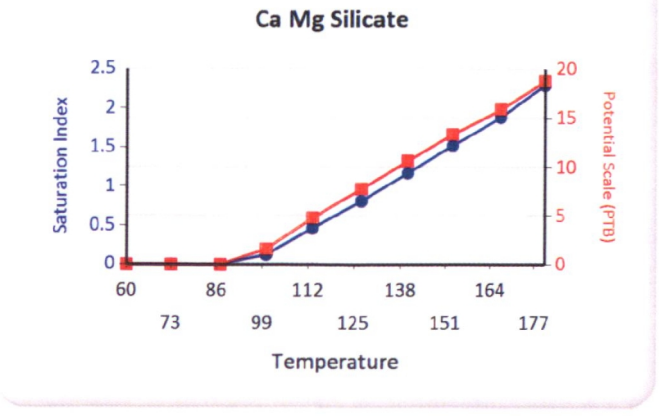
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	3.01	4.82	0.00	0.00	4.36	16.69	2.29	18.74	13.53	27.71
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.85	4.81	0.00	0.00	3.65	15.66	1.88	15.86	13.00	27.70
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	2.70	4.81	0.00	0.00	3.04	14.35	1.52	13.34	12.57	27.70
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54	4.81	0.00	0.00	2.42	12.55	1.17	10.63	12.14	27.69
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	4.80	0.00	0.00	1.80	10.19	0.81	7.77	11.72	27.68
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	4.79	0.00	0.00	1.17	7.27	0.46	4.76	11.31	27.67
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	4.77	0.00	0.00	0.55	3.79	0.12	1.60	10.91	27.65
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	4.74	0.00	0.00	0.00	0.00	0.00	0.00	10.51	27.62
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	4.69	0.00	0.00	0.00	0.00	0.00	0.00	10.12	27.58
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	4.59	0.00	0.00	0.00	0.00	0.00	0.00	9.74	27.53

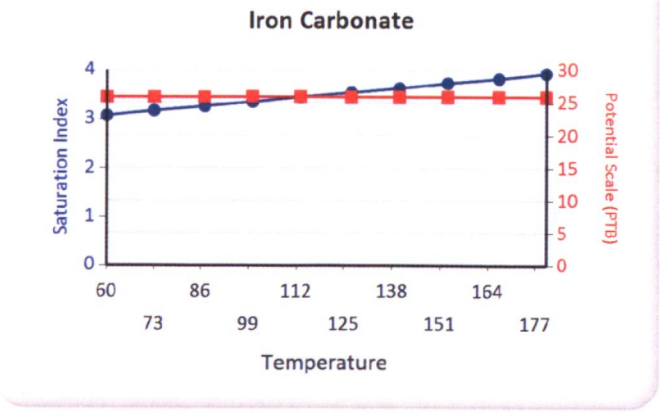
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Fe Silicate









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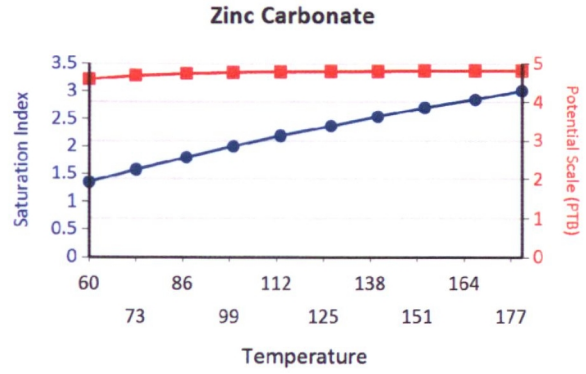
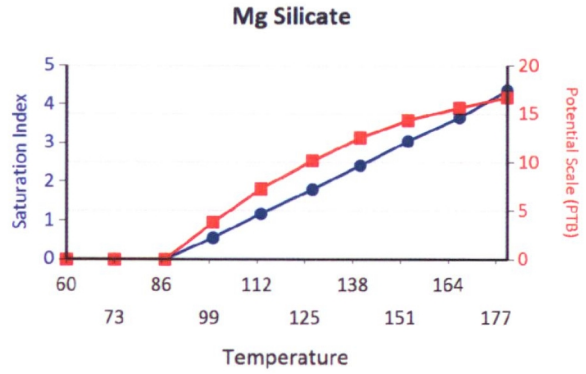
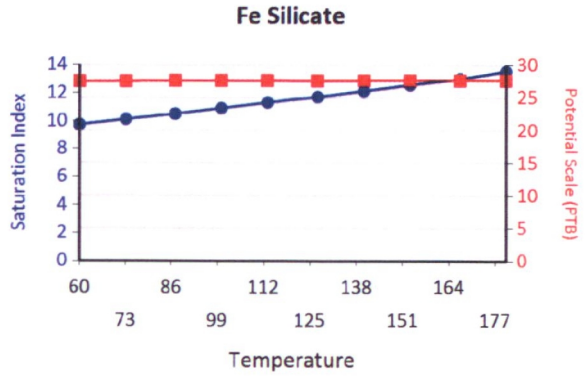






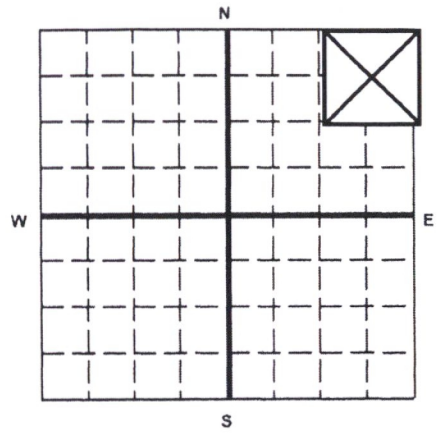
OMB No. 2040-0042 Approval Expires 12/31/2011

United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-006600

Surface Location Description

___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 16 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 611 ft. frm (N/S) N Line of quarter section and 907 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 16-01

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	1558	1571	1427		0	0
February	14	1604	1608	1317		0	0
March	14	1590	1619	1535		0	0
April	14	1609	1615	1487		0	0
May	14	1608	1610	1526		0	0
June	14	1602	1612	1467		0	0
July	14	1580	1610	1459		0	0
August	14	1611	1620	1583		0	0
September	14	1544	1612	1329		0	0
October	14	1600	1612	1562		0	0
November	14	1608	1615	1479		0	0
December	14	1594	1601	1462		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/10/2015

EPA Form 7520-11 (Rev. 12-08)

U2 Entered
Date 3/20/15
Initial GW

TAB	GREEN	BLUE	CBI
		2	

Multi-Chem Analytical Laboratory
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Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 16-01 INJ, DUCHESNE**	Lab Tech:	**Gary Winegar**
Sample Point:	**WELLHEAD**		
Sample Date:	**1/7/2015**		
Sample ID:	**WA-297454**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/14/2015
System Temperature 1 (°F):	160
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	80
System Pressure 2 (psig):	15
Calculated Density (g/ml):	0.9991
pH:	7.40
Calculated TDS (mg/L):	2888.80
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	32.00
H_2S in Gas (%):	
H2S in Water (mg/L):	5.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	315.66	Chloride (Cl):	1000.00
Potassium (K):	5.78	Sulfate (SO_4):	320.00
Magnesium (Mg):	72.41	Bicarbonate (HCO_3):	976.00
Calcium (Ca):	153.80	Carbonate (CO_3):	
Strontium (Sr):	4.11	Acetic Acid (CH_3COO)	
Barium (Ba):	0.63	Propionic Acid (C_2H_5COO)	
Iron (Fe):	12.76	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	2.88	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.00	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.11	Silica (SiO_2):	24.66

Notes:
B=.9 Al=.04 Li=.3

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum $CaSO_4 \cdot 2H_2O$		Celestite $SrSO_4$		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.96	71.13	1.34	0.36	3.07	4.58	1.74	9.07	0.00	0.00	0.00	0.00	0.00	0.00	10.62	1.50
88.00	157.00	0.91	66.94	1.25	0.35	2.93	4.57	1.72	9.06	0.00	0.00	0.00	0.00	0.00	0.00	10.38	1.50
97.00	300.00	0.94	69.33	1.18	0.35	2.90	4.57	1.79	9.09	0.00	0.00	0.00	0.00	0.00	0.00	10.24	1.50
106.00	443.00	0.98	71.87	1.11	0.35	2.87	4.57	1.85	9.12	0.00	0.00	0.00	0.00	0.00	0.00	10.12	1.50
115.00	585.00	1.02	74.54	1.05	0.34	2.86	4.57	1.92	9.14	0.00	0.00	0.00	0.00	0.00	0.00	10.00	1.50
124.00	728.00	1.06	77.33	0.99	0.34	2.85	4.57	1.98	9.16	0.00	0.00	0.00	0.00	0.00	0.00	9.90	1.50
133.00	871.00	1.10	80.21	0.94	0.33	2.85	4.57	2.05	9.18	0.00	0.00	0.00	0.00	0.00	0.00	9.80	1.50
142.00	1014.00	1.15	83.16	0.89	0.33	2.86	4.57	2.11	9.19	0.00	0.00	0.00	0.00	0.00	0.00	9.71	1.50
151.00	1157.00	1.20	86.16	0.85	0.32	2.87	4.57	2.18	9.20	0.00	0.00	0.00	0.00	0.00	0.00	9.63	1.50
160.00	1300.00	1.25	89.18	0.82	0.32	2.89	4.57	2.24	9.21	0.00	0.00	0.00	0.00	0.00	0.00	9.55	1.50

		Hemihydrate $CaSO_4 \cdot 0.5H_2O$		Anhydrate $CaSO_4$		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	1.23	0.00	0.00	0.00	0.00	0.00	0.00	3.79	8.71
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	1.32	0.00	0.00	0.00	0.00	0.00	0.00	3.59	8.52
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	1.49	0.00	0.00	0.00	0.00	0.00	0.00	3.91	8.80
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	1.61	0.00	0.00	0.00	0.00	0.00	0.00	4.24	9.04
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	1.69	0.00	0.00	0.00	0.00	0.00	0.00	4.59	9.24
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	1.76	0.00	0.00	0.00	0.00	0.00	0.00	4.96	9.40
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	1.80	0.00	0.00	0.00	0.00	0.00	0.00	5.33	9.52
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29	1.83	0.00	0.00	0.44	3.82	0.00	0.00	5.71	9.62
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	1.86	0.00	0.00	0.97	8.37	0.00	0.00	6.11	9.70
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	1.88	0.00	0.00	1.49	12.85	0.15	1.24	6.50	9.76

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Vernal, UT 84078

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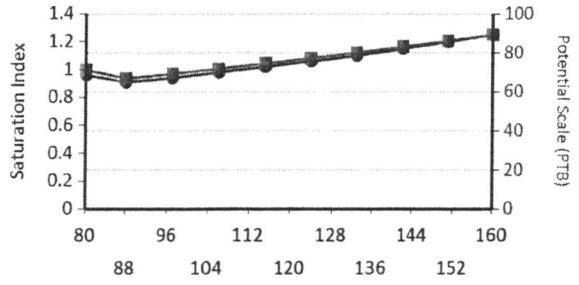
Water Analysis Report

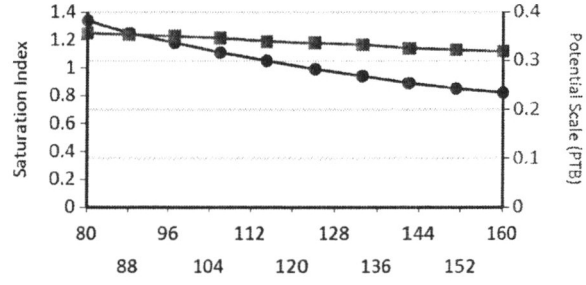
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

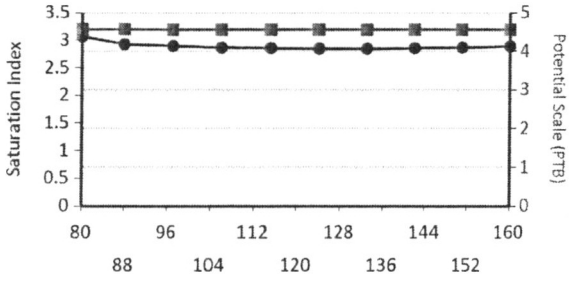
Calcium Carbonate



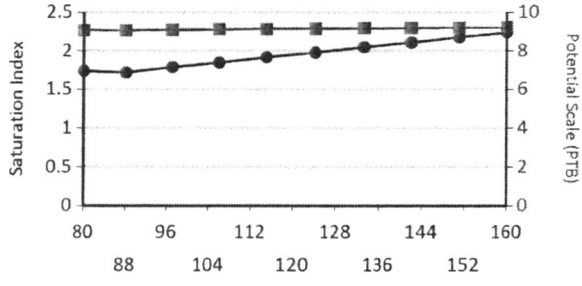
Barium Sulfate



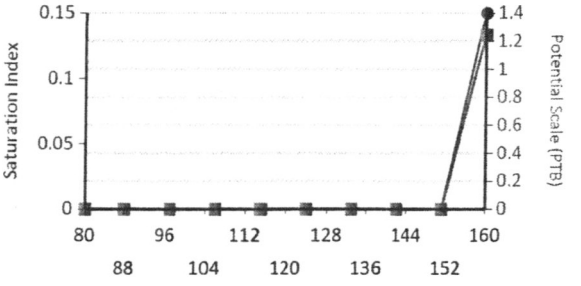
Iron Sulfide



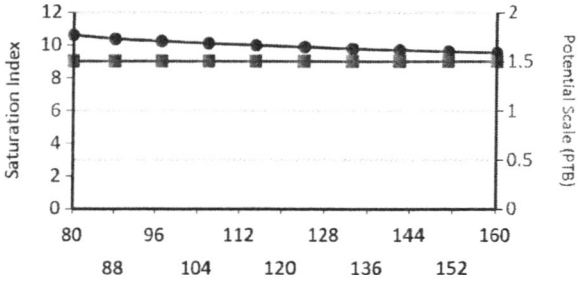
Iron Carbonate



Ca Mg Silicate



Zinc Sulfide



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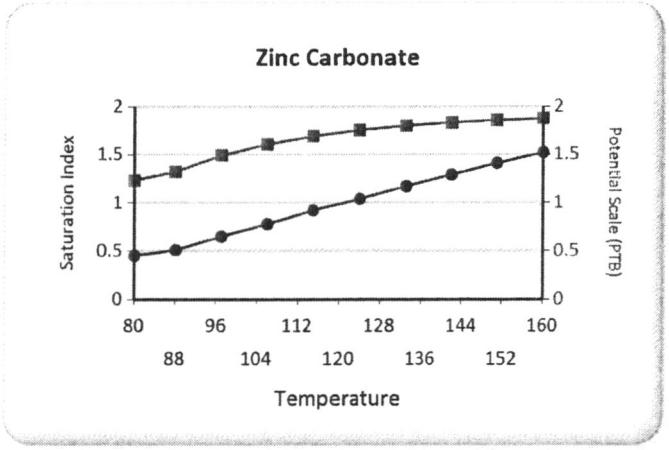
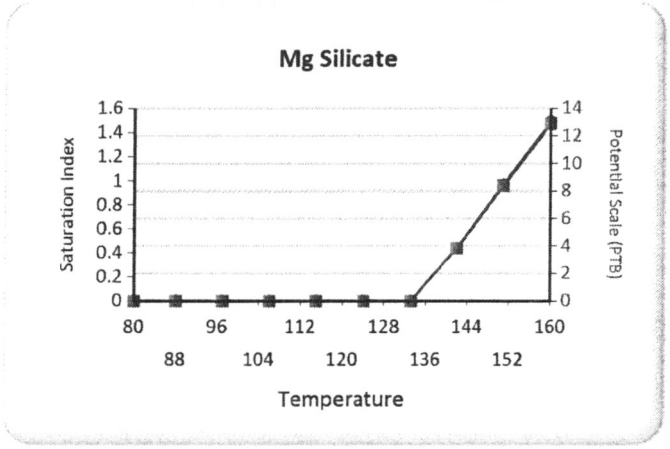
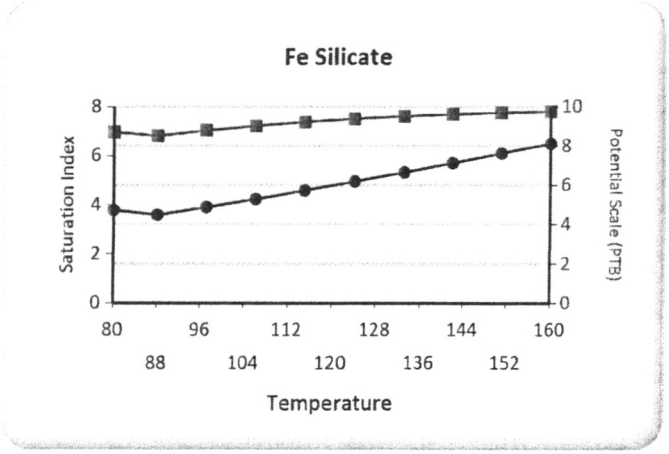
Water Analysis Report







December 29, 2015

Gary Wang
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: EPA AREA PERMIT NO. UT2736-06600
Mechanical Integrity Test
Standard Five year retesting for Ute Tribal 16-01

Mr. Breffle:
The enclose Mechanical Integrity Test was performed on the above referenced well on December 28, 2015. This MIT was performed because the well was due for the regular five year Mechanical Integrity Test.

If you need any more information please call at (435) 722-5302.

Sincerely,
Petroglyph Operating Co., Inc.

Rodrigo Jurado
Regulatory Compliance Specialist

Encl: MIT for the Ute Tribal 16-01

U2 Entered
Date 2/2/16
Initial SD

TAB	GREEN	BLUE	CBI
		2	

Mechanical Integrity Test
Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 12/28/15
Test conducted by: CHAD STEVENSON
Others present: _____

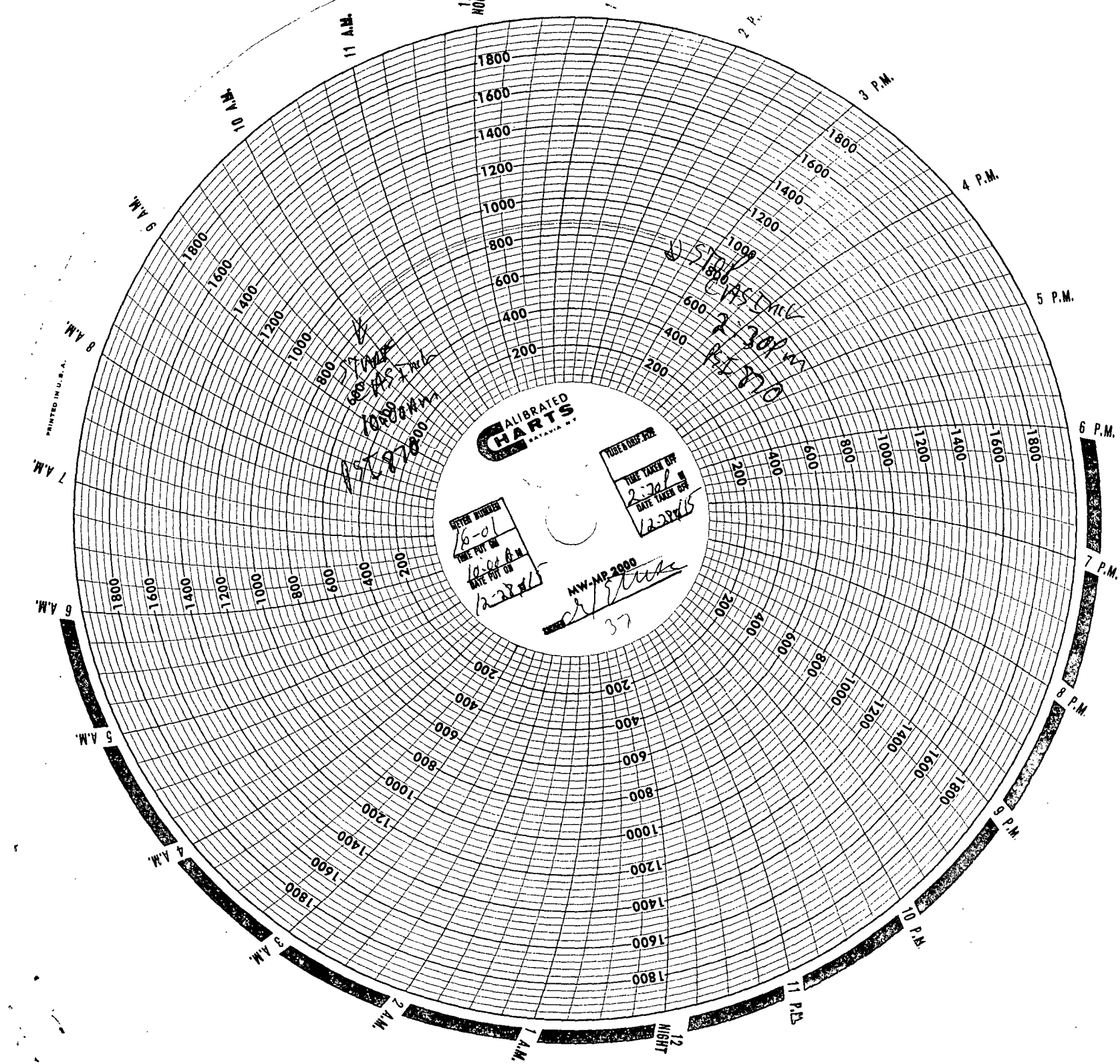
Well Name: 16-01 Type: ER SWD **Status:** AC TA UC
Field: ANTELOPE CREEK
Location: 16-01 Sec: ____ T ____ N / S R ____ E / W County: DUCHESNE State: UT
Operator: PETROGLYPH ENERGY
Last MIT: / / **Maximum Allowable Pressure:** _____ **PSIG**

Regularly scheduled test? [X] Yes [ ] No
Initial test for permit? [ ] Yes [ ] No
Test after well rework? [ ] Yes [ ] No

Well injecting during test? If Yes, rate: 37 **bpd**
Pre-test annulus pressure: _____ **psig**

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING		**PRESSURE RECORD**	
Initial Pressure	1578 psig	psig	psig
End of test pressure	1578 psig	psig	psig
CASING / TUBING ANNULUS		**PRESSURE RECORD**	
0 minutes	870 psig	psig	psig
5 minutes	870 psig	psig	psig
10 minutes	870 psig	psig	psig
15 minutes	870 psig	psig	psig
20 minutes	870 psig	psig	psig
25 minutes	870 psig	psig	psig
30 minutes	870 psig	psig	psig
4 1/2 Hours ~~minutes~~	870 psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail

Does the annulus pressure build back up after the test ? **If Yes,** _____ **psig.**


CALIBRATED CHARTS
BATAVIA, N.Y.
PRINTED IN U.S.A.
METER NUMBER
TIME PUT ON
DATE PUT ON
TUBE & ORIFICE SIZE
TIME TAKEN OFF
DATE TAKEN OFF
MW-MP-2000
37
12 NIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
6 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
12 NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.

OMB No. 2040-0042 Approval Expires 12/31/2011

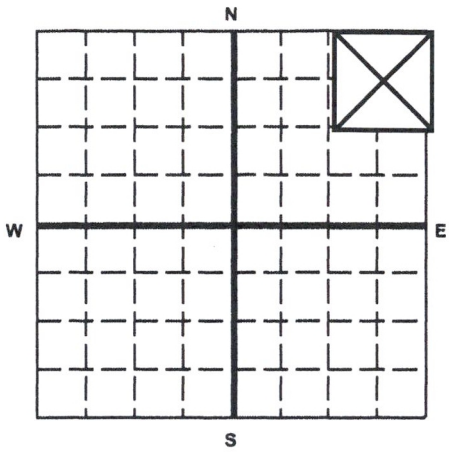
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-006600

Surface Location Description
___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 16 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 611 ft. frm (N/S) N Line of quarter section
and 907 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY
- ☐ Brine Disposal
- ☒ Enhanced Recovery
- ☐ Hydrocarbon Storage

TYPE OF PERMIT
- ☐ Individual
- ☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 16-01

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	1545	1621	1446		0	0
February	13	1567	1586	1551		0	0
March	13	1587	1596	1787		0	0
April	13	1605	1607	1534		0	0
May	13	1580	1608	1355		0	0
June	13	1580	1619	1251		0	0
July	13	1580	1603	1269		0	0
August	13	1575	1606	1342		0	0
September	13	1601	1623	1372		0	0
October	13	1589	1591	1420		0	0
November	13	1582	1591	1339		0	0
December	13	1572	1579	1398		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/11/2014

EPA Form 7520-11 (Rev. 12-08)

GREEN	BLUE	CBI
	2	

U2 Entered
Date 3/18/14
Initial SB

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**
Well Name: **UTE TRIBAL 16-01 INJ**
Sample Point: **Wellhead**
Sample Date: **1/8/2014**
Sample ID: **WA-263378**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/15/2014
System Temperature 1 (°F):	180
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	60
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.002
pH:	8.00
Calculated TDS (mg/L):	7140.11
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	1382.00	Chloride (Cl):	4000.00
Potassium (K):	42.00	Sulfate (SO_4):	154.00
Magnesium (Mg):	42.00	Bicarbonate (HCO_3):	1366.40
Calcium (Ca):	101.00	Carbonate (CO_3):	
Strontium (Sr):	5.00	Acetic Acid (CH_3COO)	
Barium (Ba):	2.00	Propionic Acid (C_2H_5COO)	
Iron (Fe):	22.00	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.04	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.04	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.09	Silica (SiO_2):	23.54

Notes:
B=3 Al=.12 Li=.75

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum $CaSO_4 \cdot 2H_2O$		Celestite $SrSO_4$		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	1.36	62.59	1.50	1.15	0.00	0.00	2.49	15.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	157.00	1.36	61.66	1.35	1.14	0.00	0.00	2.54	15.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86.00	300.00	1.39	63.57	1.22	1.12	0.00	0.00	2.62	15.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	443.00	1.43	65.64	1.11	1.10	0.00	0.00	2.71	15.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	585.00	1.48	67.81	1.01	1.07	0.00	0.00	2.79	15.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126.00	728.00	1.53	70.03	0.93	1.05	0.00	0.00	2.88	15.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	871.00	1.59	72.22	0.86	1.02	0.00	0.00	2.96	15.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	1014.00	1.65	74.36	0.80	1.00	0.00	0.00	3.05	15.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166.00	1157.00	1.72	76.37	0.75	0.98	0.00	0.00	3.13	15.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	1300.00	1.78	78.24	0.71	0.96	0.00	0.00	3.21	15.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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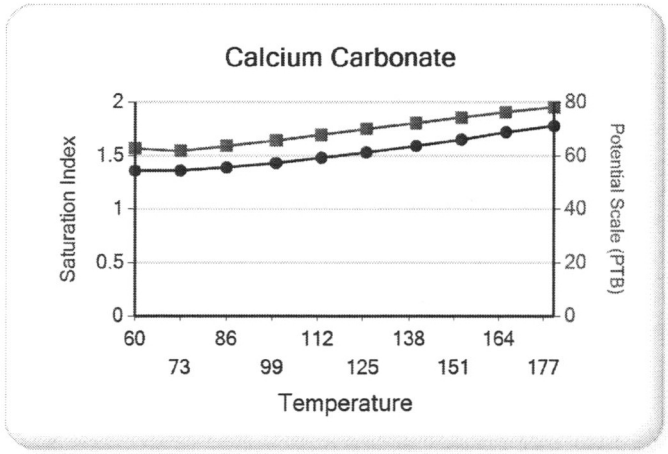
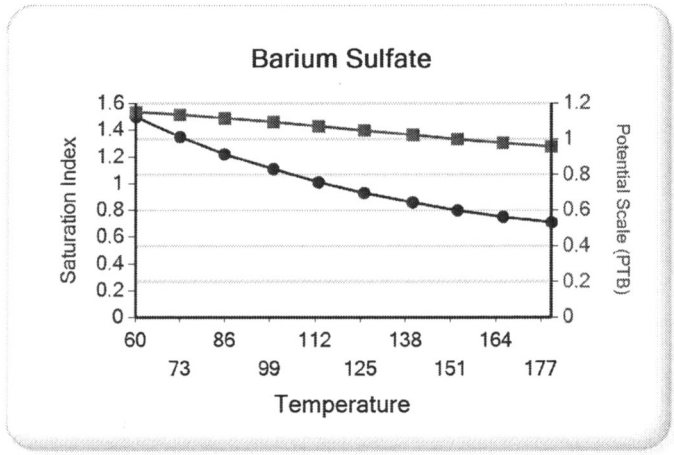
Water Analysis Report

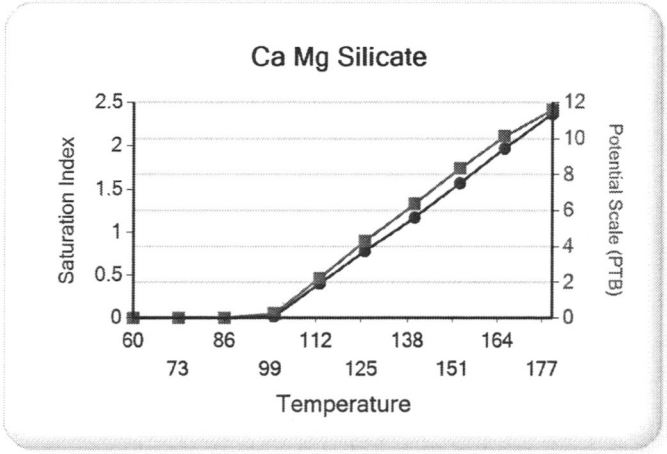
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33	16.34
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.45	16.36
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.59	0.00	0.00	7.83	16.56
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	3.96	0.02	0.25	8.24	16.72
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	7.63	0.40	2.23	8.67	16.85
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	11.55	0.78	4.30	9.13	16.93
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	15.60	1.17	6.37	9.61	16.99
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01	0.00	0.00	3.46	19.51	1.57	8.35	10.10	17.03
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.01	0.00	0.00	4.15	22.90	1.97	10.12	10.59	17.06
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.02	0.00	0.00	4.83	25.45	2.37	11.58	11.10	17.08

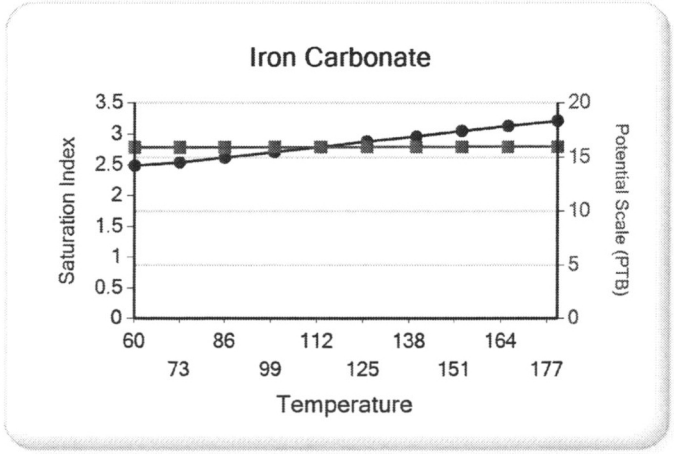
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate









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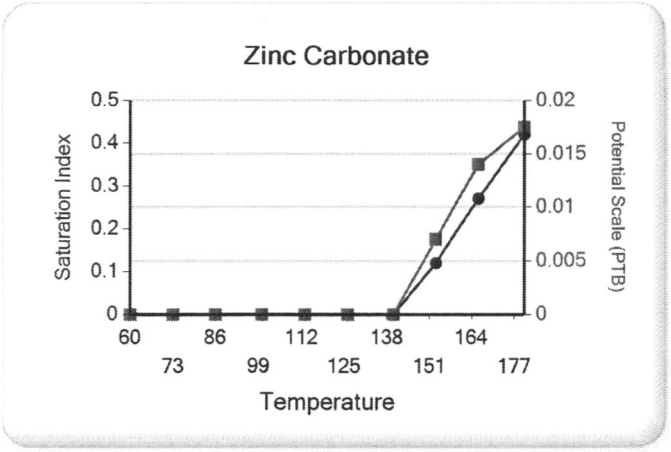
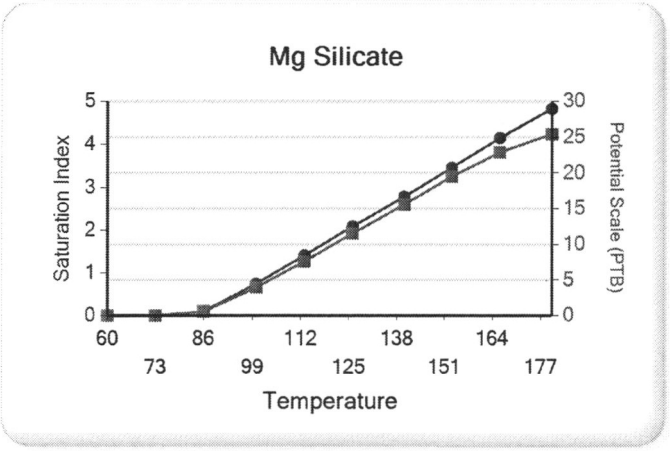
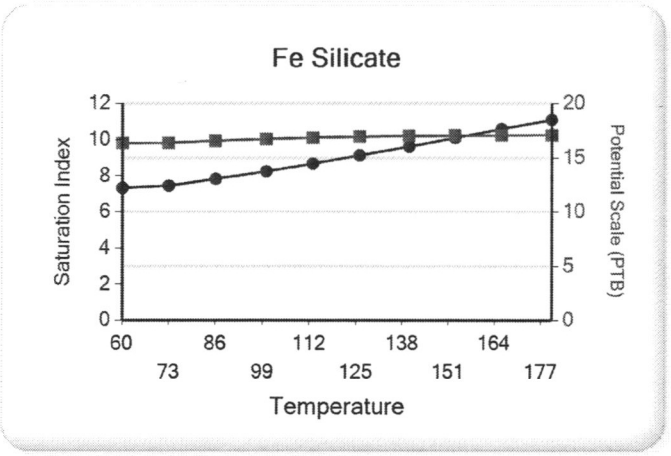
Water Analysis Report







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
http://www.epa.gov/region08

AUTHORIZATION FOR ADDITIONAL WELL

UIC Area Permit No: UT20736-00000

The Antelope Creek Waterflood Final UIC Area Permit No. UT20736-00000, effective July 12, 1994, authorizes injection for the purpose of enhanced oil recovery into multiple lenticular sand units which are distributed throughout the lower portion of the Green River Formation. On December 13, 2004, the permittee provided notice to the Director concerning the following additional enhanced recovery injection well:

Well Name:	**Ute Tribal 16-01**
EPA Well ID Number:	**UT20736-06600**
Location:	611 ft FNL & 907 ft FEL NE NW Sec. 16 - T5S - R3W Duchesne County, Utah.

Pursuant to 40 CFR §144.33, Area UIC Permit No. UT20736-00000 authorizes the permittee to construct and operate, convert, or plug and abandon additional enhanced recovery injection wells within the area permit. This well was determined to satisfy additional well criteria required by the permit.

This well is subject to all provisions of UIC Area Permit No. UT20736-00000, as modified and as specified in the Well Specific Requirements detailed below. This Authorization shall expire one year after the Effective Date unless the permittee has converted the well to injection or submits a written request to extend this Authorization prior to the expiration date.

This Authorization is effective upon signature.

Date: AUG 24 2005

Stephen S. Tuber
for *Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

** The person holding this title is referred to as the Director throughout the Permit and Authorization*

WELL-SPECIFIC REQUIREMENTS

Well Name: **Ute Tribal 16-01**
EPA Well ID Number: **UT20736-06600**

Prior to commencing injection operations, the permittee shall submit the following information and receive written Authority to Inject from the Director:

1. a successful Part I (Internal) Mechanical Integrity test (MIT);
2. pore pressure calculation of the proposed injection zone; and
3. completed Well Rework Record EPA Form No. 7520-12 and schematic diagram.

Approved Injection Zone: Injection is approved between the base of the Green River A Lime Marker at 4092 ft to the top of the Basal Carbonate at 6098 ft.

Maximum Allowable Injection Pressure (MAIP): The initial MAIP is **1660 psig,** based on the following calculation:

MAIP = [FG - (0.433)(SG)] * D, where
FG = 0.80 psi/ft SG = 1.002 D = **4540 ft** (top perforation depth KB)
MAIP = 1660 psi

UIC Area Permit No. UT20736-00000 also provides the opportunity for the permittee to request a change of the MAIP based upon results of a step rate test that demonstrates the formation breakdown pressure will not be exceeded.

Well Construction and Corrective Action: ***No Corrective Action is required.*** Based on review of well construction and cementing Records, including a CBL, well construction is considered adequate to prevent fluid movement out of the injection zone and into USDWs.

Tubing and Packer: 2-3/8" or similar size injection tubing is approved; the packer shall be set at a depth no more than 100 ft above the top perforation.

Corrective Action for Wells in Area of Review: ***No Corrective Action is required.*** The following wells that penetrate the confining zone are within or proximate to a 1/4 mile radius around the Ute Tribal No. 16-01 were evaluated to determine if any corrective action is necessary to prevent fluid movement into USDWs:

Well: Ute Tribal No. 16-02 ← Location: NW NE Sec 16 - T5S - R3W
Well: Ute Tribal No. 15-05 ● Location: NW NE Sec 15 - T5S - R3W

Demonstration of Mechanical Integrity: A successful demonstration of Part I (Internal) Mechanical Integrity using a standard Casing-Tubing pressure test is required prior to injection and at least once every five years thereafter. EPA reviewed the cementing records and determined the cement will provide an effective barrier to significant upward movement of fluids through vertical channels adjacent to the well bore pursuant to 40 CFR 146.8 (a)(2). Therefore, further demonstration of Part II (External) Mechanical Integrity is not required at this time.

Demonstration of Financial Responsibility: The applicant has demonstrated financial responsibility in the amount of $15,000 via a Surety Bond that has been reviewed and approved by the EPA.

Plugging and Abandonment: The well shall be plugged in a manner that isolates the injection zone and prevents movement of fluids into or between USDWs. Tubing, packers, and any downhole apparatus shall be removed. Class A, C, G, and H cements, with additives such as accelerators and retarders that control or enhance cement properties, may be used for plugs; however, volume extending additives and gel cements are not approved for plug use. Plug placement shall be verified by tagging. Plugging gel of at least 9.2 lb/gal shall be placed between all plugs. A minimum 50 ft surface plug shall be set inside and outside of the surface casing to seal pathways for fluid migration into the subsurface. Within sixty (60) days after plugging the owner or operator shall submit Plugging Record (EPA Form 7520-13) to the Director. The Plugging Record must be certified as accurate and complete by the person responsible for the plugging operation. At a minimum the following plugs shall be emplaced:

PLUG NO. 1: Set a cast iron bridge plug (CIBP) no more than 50 ft above the top perforation at 4540 ft with a minimum 20 ft cement plug on top of the CIBP.

PLUG NO. 2: Set a minimum 200 ft cement plug inside of the 5-1/2" casing across the Trona Zone and the Mahogany Shale, in the interval between at least approximately 2850 ft to 3050 ft.

PLUG NO. 3: Set a minimum 50 ft cement plug on the backside of the 5-1/2" casing, across the surface casing shoe at 275 ft.

PLUG NO. 4: Set a cement plug inside of the 5-1/2" casing, from at least 250 ft to 300 ft.

PLUG NO. 5: Set a cement plug, on the backside of the 5-1/2" casing, from surface to a depth of at least 50 ft.

PLUG NO. 6: Set a cement plug inside of the 5-1/2" casing from surface to a depth of at least 50 ft.

Cut off surface and 5-1/2" casing at least 4 ft below ground level and set P&A marker; submit Sundry Notices and all necessary data as required by the EPA and other regulatory agencies.

Reporting of Noncompliance:

(a) Anticipated Noncompliance. The operator shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(b) Compliance Schedules. Reports of compliance or noncompliance with, or any progress on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than thirty (30) days following each

schedule date.

(c) Written Notice of any noncompliance which may endanger health or the environment shall be reported to the Director within five (5) days of the time the operator becomes aware of the noncompliance. The written notice shall contain a description of the noncompliance and its cause; the period of noncompliance including dates and times; if the noncompliance has not been corrected the anticipated time it is expected to continue; and steps taken or planned to prevent or reduce recurrence of the noncompliance.

Twenty-Four Hour Noncompliance Reporting:

The operator shall report to the Director any noncompliance which may endanger health or environment. Information shall be provided, either orally or by leaving a message, within twenty-four (24) hours from the time the operator becomes aware of the circumstances by telephoning 1.800.227-8917 and asking for the EPA Region 8 UIC Program Compliance and Enforcement Director, or by contacting the Region 8 Emergency Operations Center at 303.293.1788 if calling from outside EPA Region 8. The following information shall be included in the verbal report:

(a) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW.

(b) Any noncompliance with a Permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

Oil Spill and Chemical Release Reporting:

The operator shall comply with all other reporting requirements related to oil spills and chemical releases or other potential impacts to human health or the environment by contacting the **National Response Center (NRC) 1.800.424.8802 or 202.267.2675,** or through the **NRC website at http://www.nrc.uscg.mil/index.htm.**

Other Noncompliance:

The operator shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted.

Other Information:

Where the operator becomes aware that he failed to submit any relevant facts in the Permit application, or submitted incorrect information in a Permit application, or in any report to the Director, the operator shall submit such correct facts or information within two (2) weeks of the time such information became known to him.

WELL-SPECIFIC CONSIDERATIONS

Well Name: **Ute Tribal 16-01**
EPA Well ID Number: **UT20736-00000**

Underground Sources of Drinking Water (USDWs): USDWs in the Antelope Creek Waterflood area generally may occur within the Uinta Formation, which extends from the surface to the top of the Green River Formation at approximately 1674 ft. According to *"Base of Moderately Saline Ground Water in the Uinta Basin, Utah, State of Utah Technical Publication No. 92,"* the base of moderately saline ground water is found at approximately 750 ft below ground surface at this well location. The top of casing cement in this well is at 912 ft below ground surface (CBL).

Confining Zone: The Confining Zone at this location is approximately 218 ft of interbedded limestone and shale between the depths of 3874 ft to 4092 ft (KB) which directly overlies the Injection Zone, based on correlation to the Antelope Creek Ute Tribal 04-03 well Type Log. Additional impermeable lacustrine shale beds above the Confining Zone provide for further protection for any overlying USDW.

Injection Zone: The Injection Zone at this well location is an approximately 2006 ft section of multiple lenticular sand units interbedded with shale, marlstone and limestone from the base of the Confining Zone at 4092 ft (KB) to the top of the Basal Carbonate Formation at 6098 ft (KB), based on correlation to the Antelope Creek Ute Tribal 04-03 well Type Log.

Well Construction: The CBL shows more than 2350 ft of 80% or greater bond across the confining zone, from approximately 3750 ft to PBTD at 6125 ft.

Surface casing:	8-5/8" casing is set at 275 ft in a 12-1/4" hole, using 165 sacks cement circulated to the surface.
Longstring casing:	5-1/2" casing is set at 6168 ft (KB) in a 7-7/8" 6206 ft Total Depth hole with a plugged back total depth (PBTD) of 6125 ft, cemented with 581 sacks cement. Top of Cement (TOC): 912 ft (KB) CBL.
Perforations:	top perforation: **4540 ft** Bottom perforation: **5344 ft**

Wells in Area of Review (AOR): Construction and cementing records, including cement bond logs (CBL) as available, for two wells in the 1/4 mile AOR that penetrated the confining zone were reviewed and found adequate to prevent fluid movement out of the injection zone and into USDWs.

Well: Ute Tribal No. 16-02	TOC: 2687 ft (calculated)	←	UT20736-04412
Well: Ute Tribal No. 15-05	TOC: 2596 ft (calculated)	●	